UNITED STATES PATENT AND TRADEMARK OFFICE

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EXAMINER
ALAM, SHAHID AL

ART UNIT	PAPER NUMBER
2162	

DATE MAILED: 11/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 June 2004</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
    closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-39* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5-16,18-29 and 31-39* is/are rejected.

7)☒ Claim(s) *4, 17, 30* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
        application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Response to Arguments

1.   Applicant's arguments filed on 24 June 2004 have been fully considered but they are not persuasive for the following reasons.

2.   Applicant's arguments with respect to objection to the disclosure is persuasive and therefore, the objection has been withdrawn.

3.   Applicant's arguments with respect to rejection under 35 U.S.C. 112, second paragraph is persuasive and therefore, the rejection under 35 U.S.C. 112, second paragraph has been withdrawn.

4.   Applicant's main argument is that Shah and Sheth do not describe or suggests generating a program code based on the system description.

        Examiner respectfully disagrees as argued.

        In the specification on pages 14 and 15, Applicant teaches that the code generator generates a program to locate data in the database, such as a search engine or program code. The program code may execute queries against the custom database using said program code or search engines executed in Java, HTML or other high level languages.

        Examiner maintains that Shah's teachings of system description as metadata information . . . mappings/extractors . . . as in page 267, Broker Agent and User Agent

as in page 268 and Web crawlers and search engines (program code) . . ., use of HTML

and XML as in page 270 clearly teaches program code that uses higher level of

language. Sheth's teaching of an extractor program takes HTML pages and extraction

rules as input and generates XML assets such as that shown in FIG. 6. These

generated assets contain values for each attribute name belonging to the domain of that

Web site. Once created, the assets are sent to a Metabase Agent that is in charge of

enhancing and inserting them into a database of records. In order to enhance the

assets, the Metabase Agent uses information stored in the WorldModel as well as a

Knowledgebase. The Knowledgebase is a collection of tables containing domain-

specific information and relationships. After insertion into the metabase, the assets are

then ready to be searched. The purpose of a WebCrawler is to read in the content of

"extractable" Web pages from a site and pass this content on to the Extractors. A

WebCrawler 3 is a piece of software, invoked on a remote or local host, which begins

reading pages from a particular site and determines which of these pages are

extractable. When a Web Crawler is invoked 2, it is given a list of "crawling rules" 4

specific to a single Web site. These rules dictate where (on which page) the crawler

should begin its search, which directories the crawler must remain within, and define the

characteristics of an extractable page. Without such rules, a WebCrawler would likely

find a link off of the site it was assigned to crawl and begin aimlessly reading the entire

Web.

Examiner is entitled to give claim limitations their broadest reasonable

interpretation in light of the specification.

During patent examination, the pending claims must be 'given the broadest reasonable interpretation consistent with the specification.' Applicant always has the opportunity to amend the claims during prosecussion and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 162 USPQ 541,550-51 (CCPA 1969).

For the above reasons, Examiner believed that rejection of the last Office action was proper.

Claim Rejections - 35 USC § 103

5.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 3, 5 – 16, 18 – 29 and 31 – 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over the publication, "Logical Information Modeling of Web-Accessible Heterogeneous Digital Assets," Shah et al., Proceedings of the 1998 IEEE International Conference on research and Technology Advances in Digital Libraries, April, 1998, USA, pages 266-275, hereinafter "Shah" in view of U. S. Patent No. 6,311,194 issued to Amit Sheth et al., (hereinafter "Sheth").

With respect to claim 1, Shah teaches a method of creating a database (page 268; Fig. 1, col. 1, par. 3; "Metabase" that stores persistent RDF or Resource Description Framework objects is a database) in a data store connected to a computer, the method comprising:

receiving a system description (Page 268; Fig. 1, "Encapsulator" receives the web information artifacts, processes and models the artifacts into RDF objects; see col. 1, 2nd par., RDF objects are system descriptions) of a structure of the database to be created;

generating said structure (Fig. 2 and Fig. 3; MREF, as described in page 270, col. 1, par. 1, and in col. 2, par. 3, is considered the structure as claimed) for the database based on the system description; and

generating system descriptions, wherein the descriptions are stored and located (the Metabase provides a level of abstraction for searching the Web; page 270, col. 1, Par. 3-5; in par. 3: "...search engines try to impose some sort of an order by building indices on top of the web artifacts ...").

In Shah, the RDF objects are used to present information at a higher semantic level in conjunction with known standards such as XML. MREF layer that sits on top of the RDF layer (see page 270, col. 2, Fig. 3) enhances the abstraction of information in terms of location and media independence. Shah does not explicitly indicate that the Metabase is a "custom database" and also in the step of "generating program code based on the system description, wherein said program code includes a module that when executed stores said object in said custom database" and does not explicitly

indicate that the data stored in the metabase is being utilized for "generating program

code" as claimed.

Shah, in page 270, col. 1, par. 3, discusses the role of a Web crawler and/or a

search engine (program code) to utilize an index that should be built on top of the web

artifacts. To facilitate searching of information artifacts that are coming from a plurality

of heterogeneous sources, Shah suggests a location-independent, media-independent

and content-dependent method of correlating resources (page 270, col. 1). Then Shah

teaches MREF that can be stored in and supplied by a separate and dynamically

constructed metadata directory (page 272, col. 2, par. 1 and 2).

Therefore, as to the step of "generating program code based on the system

description, wherein said program code stores and locates data in the custom

database", Shah does not explicitly indicate that the metabase is a custom database.

Sheth teaches a similar metabase (see abstract, col. 4, lines 55) in conjunction

with a WorldModel (col. 4, lines 64-67) that provides the customization (col. 8, lines 57-

58) sought by the claimed invention.

Sheth discloses the extraction of XML assets from and send the assets to a

Metabase Agent. Sheth's extraction of XML assets is similar to the generation of MREF

objects in Shah (see Sheth Fig. 6, col. 10, lines 43-55).

It would have been obvious to a person of ordinary skill in the art at the time the

invention was made to combine Shah and Sheth because : (i) both Shah and Sheth are

analogous art and have a common author, Sheth; (ii) the combination Shah and Sheth

would have facilitated a better semantics between various heterogeneous information

sources of the Web (col. 4, lines 46; Sheth), and (iii) the combination would have

improved the scalability of a system that deals with heterogeneous information sources

(col. 4, lines 33-44; Sheth). In other words, both Shah and Sheth teach the extraction of

information from heterogeneous resources, however, the incorporation of Sheth in Shah

would have facilitated the formation of a custom database because Sheth is explicit

about the necessity of customizing the extracted information according to users' needs

(see **_Sheth, col. 8, lines 56-58_**).

As to claim 2 (the method of claim 1, further comprising generating a user

interface to access said custom database), Shah teaches the generation of user

interface (page 270, col. 2, 3rd par. "MREF template"; page 272, col. 2, par. 1).

As to claim 3 (the method of claim 1, further comprising modifying the system

description and generating a new structure and program code that are transparent),

Shah generates program code that is transparent because Shah teaches the

independence of locations and media (page 270, col. 1, par. 5).

As to claim 5 (the method of claim 1, wherein the structure stores data to form a

relational database) Shah teaches relational databases (page 267, col. 2, par. 3).

As to claim 6 (the method of claim 1, wherein the system description comprises a

markup language file), Shah teaches the use of XML (page 270, col. 2, par. 2).

As to claim 7 (the method of claim 6, wherein the markup language file

comprises an extensible markup language (XML) document, see Shah, page 270, col.

2, par. 2).

As to claim 8 (the method of claim 7, wherein the XML document is created using a text editor), Sheth teaches a means that is equivalent to a text editor in Fig. 7-9, and in col. 11, line 57 through col. 12, lines 9; "ability to modify extracted text (append, prepend, replace))".

As to claim 9 (the method of claim 7, wherein the XML file is created using a graphical user interface), Fig. 6-9 in Sheth and page 271-272 of Shah show XML files.

As to claim 10 (the method of claim 1, wherein said program code locates data within the custom database).

As to claim 11 (the method of claim 1, wherein said program code comprises a text search engine), Shah teaches a search engine that implements keyword search (page 270, col. 1, par. 3).

As to claim 12 (the method of claim 1, wherein said program code comprises a high level language) and claim 13 (the method of claim 12, wherein the high level language comprises Java), Sheth teaches that the software components such as Metabase Agent, Extractor, Web crawler may be implemented utilizing JAVA programming language (Sheth, col. 17, lines 23-25).

Each of the limitations recited in claims 14 – 16, 18 – 29 and 31 – 39 have been addressed in details in the rejection of claims 1 – 3 and 5 – 13.

Claims 14 – 16 and 18 – 26 are essentially the same as claims 1 – 3 and 5 – 13

except that they set forth the claimed invention as an apparatus rather than a method.

Claim 14 is directed to a computer that is capable of executing a program that,

when executed, performs the steps of claim 1. Software can be loaded in a general-

purpose computer to program it and to turn it into a specific machine. Once the software

is loaded and the program is executed, the computer is capable of performing the steps

of a method as per program instructions. Claims 14 – 16 and 18 – 26 are therefore

rejected for the same reasons as applied to claims 1 – 3 and 5 – 13 above.

Claims 27 – 29 and 31 – 39 are essentially the same as claims 1 – 3 and 5 – 13

or 14 – 16 and 18 – 26 except that they set forth the claimed invention as a computer

program product rather than a method or apparatus. Claim 27 is directed to an article of

manufacture or a computer program product that can be loaded in a in a general-

purpose computer to program it and to turn it into a specific machine. Once the software

is loaded and the program is executed, the computer is capable of performing the steps

of a method as per program instructions. Claims 27 – 29 and 31 – 39 are therefore

rejected for the same reasons as applied to claims 1 – 3 and 5 – 13 above.

Claim Rejections - 35 USC § 103

6.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 3, 5 – 16, 18 – 29 and 31 – 39 are rejected under 35 U.S.C. 103(a) as

being unpatentable over U.S. Patent No. 6,343,297 issued to James D'Anjou et al.,

(hereinafter "D'Anjou") and in view of U. S. Patent No. 6,311,194 issued to Amit Sheth

et al., (hereinafter "Sheth").

With respect to claim 1, D'Anjou teaches a method of creating a database

(column 3, lines 18 – 22 and 41 – 54) in a data store connected to a computer, the

method comprising:

receiving a system description of a structure of the custom database to be

created and generating the structure for the custom database based on the system

description (column 8, lines 5 – 16).

D'Anjou does not explicitly teach the step of generating program code based on

the system description, wherein said program code stores and locates data in the

custom database as claimed.

Sheth teaches a **metabase** (see abstract, col. 4, lines 55) in conjunction with a WorldModel (col. 4, lines 64-67) that provides the customization (col. 8, lines 57-58) sought by the claimed invention.

Sheth discloses the **extraction** of XML assets from and send the assets to a Metabase Agent (see Sheth Fig. 6, column 10, lines 43 – 55 and column 12, lines 34 - 39). Sheth also discloses extractor are program that are designed to find information (column 11, lines 12 – 13).

With respect to claim 1, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine D'Anjou and Sheth because : (i) both D'Anjou and Sheth are analogous art; (ii) the combination Shah and Sheth would have facilitated a better semantics between various heterogeneous information sources of the Web (column 4, lines 46; Sheth), and (iii) the combination would have improved the scalability of a system that deals with heterogeneous information sources (column 4, lines 33 – 44; Sheth). In other words, both D'Anjou and Sheth teach the extraction of information from heterogeneous resources, however, the incorporation of Sheth in D'Anjou would have facilitated the formation of a custom database because Sheth is explicit about the necessity of customizing the extracted information according to users' needs (see ***Sheth, col. 8, lines 56-58***).

As to claim 2, generating a user interface to access the custom database (column 15, lines 12 – 29; Sheth).

As to claim 3, modifying the system description and generating a new structure and said program code that are transparent (Sheth teaches the independence of locations and media; see column 7, lines 37 – 41).

As to claim 5, the structure stores data to form a relational database (column 8, lines 47 – 52; Sheth).

As to claim 6, the system description comprises a markup language file (column 7, lines 27 – 29; Sheth).

As to claim 7, the markup language file comprises an extensible markup language (XML) document (column 8, lines 47 – 49 and column 10, lines 43 – 45; Sheth).

As to claim 8, the XML document is created using a text editor (Sheth teaches a means that is equivalent to a text editor in Fig. 7-9, and in col. 11, line 57 through col. 12, lines 9; "ability to modify extracted text (append, prepend, replace))".

As to claim 9, the XML file is created using a graphical user interface (Figures 6 – 9 in Sheth).

As to claim 10, the search engine locates data within the custom database (column 10, lines 43 – 54; Sheth).

As to claim 11, the search engine comprises a text search engine (column 11, lines 12 – 22; Sheth).

As to claim 12, the search engine comprises a high level language and claim 13 the high level language comprises Java (Sheth teaches that the software components

such as Metabase Agent, Extractor, Web crawler may be implemented utilizing JAVA programming language (Sheth, col. 17, lines 23-25).

Each of the limitations recited in claims 14 – 16, 18 – 29 and 31 – 39 have been addressed in details in the rejection of claims 1 – 3 and 5 – 13.

Claims 14 – 16 and 18 – 26 are essentially the same as claims 1 – 3 and 5 – 13 except that they set forth the claimed invention as an apparatus rather than a method. Claim 14 is directed to a computer that is capable of executing a program that, when executed, performs the steps of claim 1. Software can be loaded in a general-purpose computer to program it and to turn it into a specific machine. Once the software is loaded and the program is executed, the computer is capable of performing the steps of a method as per program instructions. Claims 14 – 16 and 18 – 26 are therefore rejected for the same reasons as applied to claims 1 – 3 and 5 – 13 above.

Claims 27 – 29 and 31 – 39 are essentially the same as claims 1 – 3 and 5 – 13 or 14 – 16 and 18 – 26 except that they set forth the claimed invention as a computer program product rather than a method or apparatus. Claim 27 is directed to an article of manufacture or a computer program product that can be loaded in a in a general-purpose computer to program it and to turn it into a specific machine. Once the software is loaded and the program is executed, the computer is capable of performing the steps of a method as per program instructions. Claims 27 – 29 and 31 – 39 are therefore rejected for the same reasons as applied to claim 1 – 3 and 5 – 13 above.

Allowable Subject Matter

7.   Claims 4, 17 and 30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Shahid Al Alam whose telephone number is (571) 272-

4030. The examiner can normally be reached on Monday-Thursday 8:00 A.M.- 4:00

P.M..

        If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John E Breene can be reached on (571) 272-4107. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

        Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Shahid Al Alam
Primary Examiner
Art Unit 2162

31 October 2004